

**WHAT IS CLAIMED IS:**

1           1.       A method for operating a service of an exchange apparatus for performing a wired  
2 phone terminal subscriber service, the method comprising the steps of:

3                 performing wired and wireless service registrations in each of the extension subscribers by  
4 endowing at least one of a plurality of wired terminals and public and private mobile communication  
5 terminals with a wired phone number in accordance with a subscriber registration application; and

6                 making a call to a wired terminal corresponding to the corresponding wired phone number  
7 when an arbitrary wired phone number is called, and making a call to the corresponding public and  
8 private mobile communication terminal through a mobile communication network when there is  
9 public and private mobile communication terminal to be called simultaneously interconnectively to  
10 the wired phone number.

1           2.       The method according to claim 1, wherein the extension subscriber comprises a first  
2 extension subscriber using only the wired terminal service.

1           3.       The method according to claim 1, wherein the extension subscriber comprises a  
2 second extension subscriber using only said mobile communication terminal service which is  
3 provided using a virtual wired phone number.

1           4.       The method according to claim 1, wherein the extension subscriber comprises a third

2 subscriber using both the wired terminal service and the mobile communication terminal service  
3 provided using the virtual wired phone number.

1 5. The method according to claim 1, wherein the subscriber registration application requests  
2 at least one of the subscriber's personal information, accounting information, a phone number of the  
3 wired terminal, an individual phone number of the mobile communication terminal, and a virtual  
4 wired phone number of the mobile communication terminal.

1 6. The method according to claim 5, wherein the personal information of the subscriber  
2 includes at least one of a name, an address, and an identification number.

1 7. The method according to claim 1, wherein the wired and wireless service includes  
2 at least one of the wired terminal service, a mobile communication terminal service, and a wired and  
3 wireless interconnecting service.

1 8. The method according to claim 1, wherein the step of performing the wired and  
2 wireless service registrations comprising:

3 registering the wired phone number with which the wired terminal constructing an extension  
4 network is endowed, the wired phone number with which the public and private mobile  
5 communication terminal is endowed, and a mobile identifier number with which the public and  
6 private mobile communication terminal is endowed from the public mobile communication network

7 in a database as extension subscriber information.

1 9. The method according to claim 8, wherein the step of performing the wired and  
2 wireless service registrations further comprising:

3 registering first identification information indicating whether an arbitrary wired phone  
4 number is a number which is connected to a terminal or a number which is not connected to a  
5 terminal, second identification indicating whether the wired phone number uses a multiple  
6 terminating service or not, and a wired phone number of the public and private mobile  
7 communication terminal which is called by the multiple forwarding function in said database.

1 10. The method according to claim 1, wherein, when a call is requested by the arbitrary  
2 public and private mobile communication terminal, the method further comprises the steps of:

3 receiving an outgoing phone number from the public and private mobile communication  
4 terminal and the mobile identifier number of the public and private mobile communication terminal  
5 endowed from the public mobile communication network;

6 determining whether the private mobile communication service is used or not using the  
7 outgoing phone number; and

8 transmitting the wired phone number with which the corresponding public and private mobile  
9 communication terminal is endowed using a caller identification, when the private mobile  
10 communication service is used as a result of the determination.

1           11.     The method according to claim 10, wherein, when a call is requested by the arbitrary  
2     public and private mobile communication terminal, the method further comprises:  
3     transmitting the mobile identifier number of the public and private mobile communication terminal  
4     which is received from the public and private mobile communication terminal using a caller  
5     identification, when the public mobile communication service is used as a result of the  
6     determination.

1           12.     The method according to claim 1, wherein the step of making a call to the public and  
2     private mobile communication terminal comprising the steps of:  
3                 transferring a ring signal to make a call to the public and private mobile communication  
4     terminal through a private base station which provides the public and private mobile communication  
5     terminal with a wireless environment; and  
6                 transferring the ring signal to call the public and private mobile communication terminal  
7     through the public mobile communication network, when there is no response from the public and  
8     private mobile communication terminal for a predetermined time.

1           13.     The method according to claim 1, further comprises a performing a billing according  
2     to a usage of the wired and wireless services in each of the extension subscribers.

1           14.     The method according to claim 13, wherein the step of performing the billing applies  
2     an extension billing rate used when a speech is made between extension subscribers using the private

mobile communication network.

15. The method according to claim 13, wherein the step of performing the accounting applies an external line billing rate used when a speech is made between extension subscribers using the public mobile communication network.

16. The method according to claim 13, wherein performing the billing according to a usage of the wired and wireless services in each of the extension subscribers further comprised of charging according to the wired and wireless services in each of the extension subscribers being performed.

17. The method according to claim 13, wherein when the private mobile communication network is used when the charge is performed, an extension billing rate may be applied, and when the public mobile communication network is used, external line billing rate may be applied.

18. A computer-readable medium having computer-executable instructions for performing a method, comprising:

performing wired and wireless service registrations in each of a plurality of extension subscribers by endowing at least one of a plurality of wired terminals and public and private mobile communication terminals with a wired phone number in accordance with the subscriber registration application;

7 making a call to a wired terminal corresponding to the corresponding wired phone number  
8 when an arbitrary wired phone number is called, and making a call to the corresponding public and  
9 private mobile communication terminal through a mobile communication network when there is  
10 public and private mobile communication terminal to be called simultaneously interconnectively to  
11 the wired phone number; and

12 performing a billing according to a usage of the wired and wireless services in each of the  
13 extension subscribers.

1 19. A computer-readable medium having computer-executable instructions for performing  
2 a method of claim 18, further comprising:

3 receiving the subscriber registration application for wired and wireless services from the  
4 arbitrary extension subscriber before performing wired and wireless service registrations.

1 20. A computer-readable medium having stored thereon a data structure comprising:  
2 a first field containing data representing receiving a subscriber registration application for  
3 wired and wireless services from an arbitrary extension subscriber;

4 a second field containing data representing performing wired and wireless service  
5 registrations in each of the extension subscribers by endowing at least one of a plurality of wired  
6 terminals and public and private mobile communication terminals with a wired phone number in  
7 accordance with the subscriber registration application;

8 a third field containing data representing making a call to a wired terminal corresponding to

9 the corresponding wired phone number when an arbitrary wired phone number is called, and making  
10 a call to the corresponding public and private mobile communication terminal through a mobile  
11 communication network when there is public and private mobile communication terminal to be  
12 called simultaneously interconnectively to the wired phone number; and

13 a fourth field containing data representing performing a billing according to a usage of the  
14 wired and wireless services in each of the extension subscribers,

15 a fifth field containing data representing, when a call is requested by the arbitrary public and  
16 private mobile communication terminal, the method further comprises of:

17 a sixth field containing data representing receiving an outgoing phone number from the  
18 public and private mobile communication terminal and the mobile identifier number of the public  
19 and private mobile communication terminal endowed from the public mobile communication  
20 network;

21 a seventh field containing data representing determining whether the private mobile  
22 communication service is used or not using the outgoing phone number;

23 an eighth field containing data representing transmitting the wired phone number with which  
24 the corresponding public and private mobile communication terminal is endowed using a caller  
25 identification, when the private mobile communication service is used as a result of the  
26 determination; and

27 a ninth field containing data representing transmitting the mobile identifier number of the  
28 public and private mobile communication terminal which is received from the public and private  
29 mobile communication terminal using the caller identification, when the public mobile

communication service is used as a result of the determination.